

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization International Bureau



(43) International Publication Date
17 February 2005 (17.02.2005)

PCT

(10) International Publication Number
WO 2005/014072 A1

(51) International Patent Classification⁷: **A61L 27/06, 27/56**

(21) International Application Number:
PCT/CA2003/001213

(22) International Filing Date: 8 August 2003 (08.08.2003)

(25) Filing Language: English

(26) Publication Language: English

(71) Applicant, (for all designated States except US):
BIORTHEX INC. [CA/CA]; 9001 l'Acadie Boulevard, Suite 802, Montréal, Québec H4N 3H5 (CA).

(72) Inventors; and

(75) Inventors/Applicants (for US only): **CHERNYSHOV, Alexandre** [CA/CA]; 70 Mgr - Blanche, Sept-Iles, Québec G4R 3G2 (CA). **ALLARD, Sylvain** [CA/CA]; 359 de Grenoble, Ste-Julie, Québec J3E 1A2 (CA).

(74) Agent: **OGILVY RENAULT**; Suite 1600, 1981 McGill College Avenue, Montréal, Québec H3A 2Y3 (CA).

(81) Designated States (national): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

(84) Designated States (regional): ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:

— with international search report

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

WO 2005/014072 A1

(54) Title: BIOCOMPATIBLE POROUS Ti-NI MATERIAL

(57) Abstract: This invention relates to a porous nickelide of titanium (TiNi) material also comprising oxygen, that is biomechanically and biochemically compatible and is intended primarily for use in the biomedical fields for implantation and interfacing with living tissues. The material has a porous structure defined by morphological, mechanical and surface properties to conform well to adjacent bone to which the TiNi material is designed to bind. The material is further distinguished by a complete lack of nickel enriched secondary phases. These phases may leach nickel into the body which could result in complications associated with nickel toxicity. The mechanical properties and surface characteristics achieved confirm the biofunctionality of the invention.